Metropolitan Benefits By Program Area

Program Area/Benefit Measure		Summary
Arterial Management Systems	Safety Improvements	Automated enforcement of traffic signals has reduced red-light violations 20-75%.
	Delay Savings	Adaptive signal control has reduced delay 14-44%.
	Throughput	
	Customer Satisfaction	In Michigan, 72% of surveyed drivers felt "better off" after signal control improvements.
	Cost Savings	Transit signal priority on the Toronto Transit Line allowed same level-of-service with less rolling stock.
	Environmental	Improvements to traffic signal control have reduced fuel consumption 2-13%.
	Other	Adaptive signal control has reduced stops 10-41%.
Freeway Management Systems	Safety Improvements	Ramp Metering has shown a 15-50% reduction in crashes.
	Delay Savings	In Minn-St. Paul, ramp metering reduced freeway travel time 22% for an annual savings of 25,121 vehicle-hours.
	Throughput	Ramp metering increased throughput 13% in Glasgow, Scotland; and 16% in Minn-St. Paul.
	Customer Satisfaction	After the Twin Cities ramp meter shutdown test, 69% of travelers supported modified continued operations.
	Cost Savings	The GA Navigator (integrated system) supported incident delay reductions for an annual savings of $44.6 million.
	Environmental	
	Other	Ramp metering has shown an 8-60% increase in freeway speeds .
Transit Management Systems	Safety Improvements	In Denver, AVL systems with silent alarms have supported a 33% reduction in bus passenger assaults.
	Delay Savings	CAD/AVL has improved on-time bus performance 9-23%.
	Throughput	
	Customer Satisfaction	In Denver, installation of CAD/AVL decreased customer complaints by 26%.
	Cost Savings	In San Jose, AVL has reduced paratransit expense from $4.88 to $3.72 per passenger.
	Environmental	
	Other	More efficient bus utilization has resulted in a 4-9% reduction in fleet size.
Incident Management Systems	Safety Improvements	In San Antonio, integrated VMS and incident management systems decreased the crash rate by 2.8%.
	Delay Savings	Incident management in city and regional areas has saved 0.95-15.6 million vehicle-hours of delay per year.
	Throughput	
	Customer Satisfaction	Customers have been very satisfied with service patrols (hundreds of letters).
	Cost Savings	Cost savings have ranged from 1-45 million dollars per year depending on coverage area size.
	Environmental	Models of the Maryland CHART system have shown fuel savings of 5.8 million gallons per year.
	Other	The I-95 TIMS system in PA has decreased highway incidents 40%, and cut closure time 55%.
Emergency Management Systems	Safety Improvements	In Palm Beach, GPS/AVL systems reduced police response times by 20%.
	Delay Savings	
	Throughput	
	Customer Satisfaction	95% of drivers equipped with PushMe Mayday system felt more secure.
	Cost Savings	
	Environmental	
	Other	
Electronic Toll Collection	Safety Improvements	Driver uncertainty about congestion contributed to a 48% increase in accidents at E-PASS toll stations in Florida.*
	Delay Savings	The New Jersey Turnpike Authority (NJTA) E-Zpass system has reduced vehicle delay by 85%.
	Throughput	Tappan Zee Bridge: Manual lane 400-450 vehicles/hour (vph), ETC lane 1000 vph.
	Customer Satisfaction	
	Cost Savings	ETC has reportedly reduced roadway maintenance and repair costs by 14%.
	Environmental	NJTA models indicate E-Zpass saves: 1.2 mil gallons of fuel/yr, 0.35 tons of VOC/day, and 0.056 tons NOx/day.
	Other	Value pricing using ETC in Florida has resulted in 20% of travelers adjusting their departure time.
Electronic Fare Payment	Safety Improvements	
	Delay Savings	
	Throughput	
	Customer Satisfaction	Europe has enjoyed a 71-87% user acceptance of smart cards for transit/city coordinated services.
	Cost Savings	The Metro Card System saved New York approximately $70 million per year.
	Environmental	
	Other	
Highway Rail Intersections	Safety Improvements	In San Antonio, VMS with railroad crossing delay information decreased crashes at intersections by 8.7%.
	Delay Savings	
	Throughput	
	Customer Satisfaction	School bus drivers felt in-vehicle warning devices enhanced awareness of crossings.
	Cost Savings	
	Environmental	Automated horn warning systems have reduced adjacent noise impact areas by 97%.
	Other	
Regional Multimodal Traveler Information	Safety Improvements	
	Delay Savings	A model of SW Tokyo shows an 80% decrease in delay if 15% of vehicles shift their departure time by 20 min.
	Throughput	
	Customer Satisfaction	38% of TravTek users found in-vehicle navigation systems useful when travelling in unfamiliar areas.
	Cost Savings	
	Environmental	EPA-model estimates of SmarTraveler impacts in Boston show 1.5% less NOx, and 25% less VOC emissions.
	Other	Models of Seattle show freeway-ATIS is 2x more effective at reducing delay if integrated with arterial-ATIS.

Source: http://www.benefitcost.its.dot.gov *Database also includes negative impacts of ITS. Date: 9/29/2001

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